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4424791-0002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No: 6,783,682 B1
Issued: Aug. 31, 2004
Patentee: Leon Awerbuch
Serial No.: 09/641,123
Filed: Aug. 16, 2000
Examiner: Ana Fortuna
Title of Invention: Salt Water Desalination Process Using Ion Selective Membranes

Certificate of Mailing Under 37 C.F.R. § 1.8	
I hereby certify that this paper is being deposited with the United States Postal Service as first class mail on the date indicated below in an envelope addressed to:	
Assistant Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450	
Andrew Fessak	48,528
Agent Name	PTO Reg. No.
<i>Andrew Fessak</i>	11/5/04
Signature	Date of Signature

Certificate
NOV 10 2004
of Correction

Certificates of Correction Branch
Assistant Commissioner for Patents
Box 1450
Alexandria, VA 22313-1450

**REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT
FOR PTO MISTAKE UNDER 37 C.F.R. §1.322(a)**

1. Attached is PTO/SB/44 (also Form PTO-1050) suitable for printing.
2. The exact page and line number where the errors are shown correctly in the application file are:

NOV 12 2004

COLUMN AND LINE NUMBER ON ISSUED PATENT	LOCATION IN APPLICATION FILE WHERE THE ERRORS ARE SHOWN CORRECTLY
<u>Title page.</u> Under "References Cited" [INID Code (56)], in the section entitled "Other Publications" add the following document: --Al-Sofi, M. A. K. et al., "Nanofiltration as a Means of Achieving Higher TBT of $\geq 120^{\circ}\text{C}$ in MSF", Elsevier Scientific Publishing Corp., Amsterdam, vol. 118 (1998) 123-129.--	Form PTO-1449 signed by the Examiner on Sept. 29, 2001; and Office Action, mailed April 9, 2002, page 4.
<u>Col. 13:</u> Line 21: "content:" should read --content--.	Amendment mailed Feb. 19, 2004, Page 2 (former claim 1).
<u>Col. 13:</u> Line 31: "to the top operating temperature or the system" should read --to increase the top operating temperature of the system--.	Amendment mailed Feb. 19, 2004, Page 2 (former claim 1).
<u>Col. 14:</u> Line 6: Delete "cut".	Amendment mailed Feb. 19, 2004, Page 3 (former claim 9).

3. Patentee requests correction of the referenced patent through issuance of a Certificate of Correction. Please send the Certificate to the undersigned Agent.

4. As part of this communication, Patentee requests that the publication, Al-Sofi, M. A. K. et al., Nanofiltration as a Means of Achieving Higher TBT of $\geq 120^{\circ}\text{C}$ in MSF, Elsevier Scientific Publishing Corp., Amsterdam, vol. 118 (1998) 123-129 ("Al-Sofi") be identified in a Certificate of Correction as a cited reference of record.

Specifically, Al-Sofi was properly disclosed in an Information Disclosure Statement filed December 13, 2000. The Examiner signed the related Form PTO-1449 on September 21, 2001, but failed to initial or draw a line through the Al-Sofi citation. However, in the Office Action, mailed April 9, 2002, the Examiner cited Al-Sofi in support of a rejection of claims 2, 9, and 10 under 35 U.S.C. §103. In that same Office Action, the Examiner referred to the cited reference by its correct title, i.e., "Nanofiltration as a Means of Achieving Higher TBT of...in MSF", but

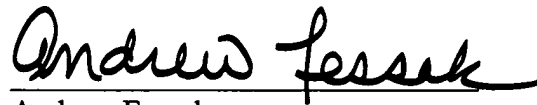
incorrectly identified the authors as "Hassan et al." rather than "Al-Sofi et al." Notwithstanding the Examiner's error, it is clear from the record that the Examiner considered and cited Al-Sofi in support of a prior art rejection during prosecution.

Accordingly, Patentee requests issuance of a Certificate of Correction which shows, *inter alia*, that Al-Sofi was considered by the Examiner and is a cited reference of record.

5. No fee is required in connection with this request. However, if any fee is deemed to be due in connection with this communication, authorization is hereby given to charge the fee to Deposit Account No. 23-1703.

Dated: Nov. 5, 2004

Respectfully submitted,



Andrew Fessak
Reg. No. 48,528
Agent for Applicant

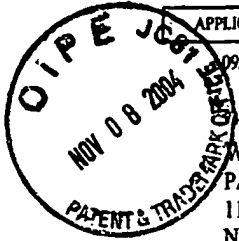
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NOV 12 2004



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,123	08/16/2000	Leon Awerbuch	4424791-0002	3791

7590 04/09/2002
WHITE & CASE LLP
PATENT DEPARTMENT
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

EXAMINER

FORTUNA, ANA M

ART UNIT	PAPER NUMBER
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1723

11

DATE MAILED: 04/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

NOV 12 2004

Office Action Summary

Application No.
09/641,123

Applicant(s)
Awerbuch

Examiner
Ana Fortuna

Art Unit
1723



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 29, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 24-29 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 3, 4, 5, 6, 8, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 24-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Hassan (WO 99/16714)(hereinafter WO). Reference WO teaches the process of producing potable water from sea water by combining nanofiltration and desalination systems, e.g. RO, MSFD, MED, VCD (abstract, page 4, lines 21-29, page 5, and Fig. 9). Reference WO also teaches the blending of the softened water with water containing higher concentration of hardness, e.g. with concentrated water from a reverse osmosis step, and/or with sea water, which is heated by the distillate water produced in the MSFD unit (illustrated in Fig. 9, as NF, SWRO, H.R.C., H. R.J, S.W(sea water)). It is clearly illustrated that permeate from the NF membrane is received in container A/A), and pumped to the MSFD, after mixing with sea water. As to claims 3-4, 6, in the embodiment including the mixing (claimed in step b of claim 1), the feed is introduced to the MSFD. As to claim 5, alternatively using RO, or VCD (vapor compression distillation) is also disclosed in WO (page 11, lines 18-25) as equivalents to MSFD.

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As to claim 7, the operation temperature claimed is disclosed by WO (page 20, lines 16-18).

Regarding claim 8, the first membrane water treatment step as nanofiltration is disclosed (Figure 9, NF). As to claim 11, the nanofiltration operating temperature are conventional and disclosed in The WO (Table 6). The changes on permeate composition with pressure are also disclosed, as claimed in claim 12 (Fig. 1 or WO). As to claim 13, the softened water, e.g. permeate from the nanofiltration unit is stored into a container (AA, Fig. 9). As to claims 14-16, the mixing of the permeated from the nanofiltration, e.g. with reject from the reverse osmosis membrane, in the container (buffer system), and prior to entering the desalination system is disclosed (Fig. 9).

Regarding claim 17, 26, producing a rejected stream or brine, e.g. from the nanofiltration, reverse osmosis and MSFD is disclosed in WO (Fig. 9). The process including treating water with the system as claimed in claims 24-25 are also disclosed in WO, together with the description with the system (Fig. 9). Regarding claim 18, adding acid prior to the nanofiltration treatment of the sea water is also disclose (Fig. 9, H₂SO₄). Using a multistage membrane process, e.g. including more than one NF and RO membranes in the system is disclosed by WO (Fig. 8)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

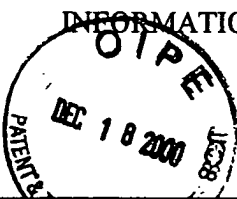
Art Unit: 1723

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 9, 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan (WO), as applied to the claims in the above paragraph, and further in view of Hassan et al (Nanofiltration as means of achieving higher TBT of ... in MSF) The later reference teaches combining nanofiltration with the desalination process, and suggest using NF permeate as make up water fro the MSF, and further teaches deareating the make up water (from the reverse osmosis or nanofiltration membrane), before passing it to the desalination unit.(entire articles, pages 123-129, fig. 3). Heating the NF permeate is also suggested by Hassan (page 127, column 1, last paragraph, and column 2, first paragraph). As to claim 2, injecting a percentage of make up water as desired, or required by the process it would have been obvious to one skilled in the art at the time the invention was made. It would have been also obvious to one skilled in the art at the time the invention was made to use the system of Hassan et al (article) for the production of potable water as suggested, and in combination with aeration of the make up water to the MSFD, as suggested by Hassan et al (article), heating of the make up water, e.g. by mixing with the heated sea water, which is heated by heat exchanging with the distillate (unit H. RJ).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

FORM PTO-1449 (REV. 2-82)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	Atty. Docket No. <u>4424791-0002</u>	Serial No. 09/641,123
INFORMATION DISCLOSURE STATEMENT BY APPLICANT 		Applicant: Leon Awerbuch	
		Filing Date: August 16, 2000	Group: TBA

UNITED STATES PATENT DOCUMENTS

*Examiner Initial	Document No.							Date	Name	Class	Sub-Class	Filing Date, if Appropriate
AF	3	7	2	5	2	6	7	3 April 1973	Gelblum	210	48	
AF	3	9	2	3	6	0	7	2 Dec 1975	Tabata et al.	203	7	

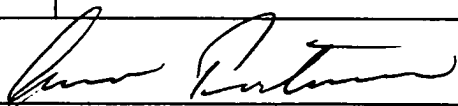
FOREIGN PATENT DOCUMENTS

*Examiner Initial	Document No.							Date	Country	Class	Sub-Class	Translation Yes No	
AF	5	7	3	8	9	8	2	3 March 1982	JP	/	/	X	
AF	5	9	1	0	2	4	9	13 June 1984	JP	/	/	X	
AF	9	1	4	1	2	6	0	3 June 1997	JP	/	/	X	

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		Al-Sofi, M. A. K. et al., "Nanofiltration as a Means of Achieving Higher TBT of $\geq 120^{\circ}\text{C}$ in MSF", Elsevier Scientific Publishing Corp., Amsterdam, vol. 118 (1998) 123-129

Examiner:



Date Considered:

9/29/01

*Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

Patent No: 6,783,682 B1
Issued: August 31, 2004
Name of Patentee: Leon Awerbuch

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page.

Under "References Cited" [INID Code (56)], in the section entitled "Other Publications" add the following document:

--Al-Sofi, M. A. K. et al., "Nanofiltration as a Means of Achieving Higher TBT of $\geq 120^{\circ}\text{C}$ in MSF", Elsevier Scientific Publishing Corp., Amsterdam, vol. 118 (1998) 123-129.--

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Line 21: "content:" should read --content--.

Line 31: "to the top operating temperature or the system" should read --to increase the top operating temperature of the system--.

Col. 14:

Line 6: Delete "cut".

MAILING ADDRESS OF SENDER:

Andrew Fessak
White & Case LLP
1155 Avenue of the Americas
New York, New York 10036

Burden Hour Statement: This form is estimated to take 1.0 hour to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

(Certificate of Correction (PTO/SB/44) [14-3]—page 1 of 1)